

remains at Stockholm. Fabricius, the pupil of Linné, and his worthy successor in entomology, was much in England, and described the insects in the collections of Sir Joseph Banks, Dr. Hunter, and others; and though some of these types are missing, a large proportion are still preserved in the British Museum (Natural History) and also in Glasgow.

Oxford University Museum contains no types of the last century; but the nucleus of its entomological collection consists of the united collections of Hope and Westwood, to which large additions have been made from other sources, especially from the collection of Wilson Saunders, which was specially rich in the types of moths described by Francis Walker from the collections formed by Dr. A. R. Wallace in the Malay Archipelago. As Walker's descriptions are frequently short and unsatisfactory, it was a matter of considerable scientific importance to verify them as far as possible from the original types; and hence the present work was undertaken by Col. Swinhoe, and the first volume, containing Sphinges and Bombyces, and illustrated by eight plates, was published in 1892. The second volume, just issued, and twice the thickness of the first, completes the subject. It is a full synonymic catalogue of the Eastern and Australian moths in the Oxford Museum, and special attention has been paid to the elucidation of Walker's types, a considerable number of which are figured, as well as many new species which are now described and figured by Col. Swinhoe and his coadjutors for the first time.

Books like the present are of great use to all entomologists who are working at exotic moths, and we cordially recommend Col. Swinhoe's work to their special attention.

*Sexual Dimorphism in the Animal Kingdom.* By J. T. CUNNINGHAM, M.A. London: Adam and Charles Black, 1900.

*Colour in Nature.* By MARION I. NEWBIGIN. London: John Murray, 1898.

IN the production of the first-mentioned book, the nucleus of which appeared in the pages of the now unhappily extinct 'Natural Science,' Mr. Cunningham has, without doubt, spared neither time nor pains. As a result, he has brought together a considerable number of facts of real and lasting value. Whether, however, his interpretation of these facts will find favour with students of this subject is another matter: we shall be surprised if he succeeds in making a single convert.

Mr. Cunningham is Lamarckian in principles. His object has been, he tells us, not to "attempt to prove that acquired characters are inherited," but "merely to point out how remarkably the multitudinous facts all agree with the hypothesis that secondary sexual characters are due to the inheritance of acquired characters." This very cautious statement of his case looks somewhat as though Mr. Cunningham were a little afraid of the ghost which he has conjured up.

The beard of man, and especially of the Caucasian races, it is suggested, owes its conspicuous development to the stimulation of

the growth of the hair by tugging of the teeth or hands in the combats of mature males. But, as Mr. Cunningham remarks, "It is unlikely that men should fight in the way suggested after they had reached even the stage of evolution known to us in the lowest existing savages, for they seem always to fight with weapons." Thus, from the dawn of man's evolution the stimulation which Mr. Cunningham invokes has ceased to act, at least with any degree of periodicity; therefore by the tenets of his faith these secondary sexual characters should have disappeared, from disuse. After all, as Mr. Cunningham remarks, "what is wanted is evidence concerning the influence of mechanical irritation of the hair-follicles in the growth of the hair."

The common fowl, we are reminded, in fighting erects the long neck-hackles, "which accounts for their elongation." The blows of the beak upon the head received during these contests had similarly been made to account for the comb and wattle. The crest of the peacock has been produced, we are solemnly informed, like the comb of the common cock, by strokes of the beak, which, being less violent, have plucked at the feathers instead of injuring the skin, and so causing an outgrowth from it.

Are we to account in the same way for the two remarkable feathers which depend, one on either side of the head, in the King of Saxony's Bird of Paradise? or the wonderful balls of down which invest the legs of the humming-birds of the genus *Spathura*?

The brilliantly coloured bare skin of the cassowary is the result of the irritation, we are asked to believe, "produced by the blows of the beaks of the birds when fighting . . . the habit of fighting with the beak also explains the presence of the bony crest on the skull."

As a matter of fact the cassowary fights not with the beak, but with the legs, which by powerful down-strokes can inflict serious injuries. No one who knows anything of the structure of the helmet of the cassowary would suggest that its existence was due to blows of the beak.

We venture to think that the above instances are indicative that Mr. Cunningham has failed to seriously injure the case for sexual selection, which, as yet, it must be admitted, holds the field, even though it may fail to satisfy us as an explanation of all the problems which it is called upon to solve.

As a whole we may say of this book that it contains many new things and many good things; but the new things are not good and the good things are not new. Nevertheless it will doubtless be widely read and will find a place on the bookshelves even of those who differ from Mr. Cunningham on this very important subject. It is well printed, well illustrated, and nicely got up.

In the little work on 'Colour in Nature' we have an undoubtedly important contribution which will enable us to test the value of much that has hitherto been of a purely speculative nature. The book has probably by this time become tolerably well known. To those who have not yet made its acquaintance we would recommend it as an extremely interesting and helpful work.